

# [CLAIMS]

1. A method for creating K printing masters for reproducing an electronic image having colour pixels, each colour pixel being represented by K spatially corresponding component pixels,  $K > 1$ , each component pixel having an input pixel value, the printing masters being capable of rendering  $N_j$  intensity levels for a component pixel,  $1 \leq j \leq K$ , thereby defining  $N_1 * N_2 * .. * N_K$  intensity level combinations, the method comprising the steps of :
  - computing for any colour pixel a scalar value which is a function of at least one of said input pixel values of said spatially corresponding component pixels;
  - quantizing said scalar value by a multilevel halftoning process to obtain for said colour pixel a quantized scalar value;
  - using said quantized scalar value to select, out of all said intensity level combinations, a subset of intensity level combinations;
  - selecting one combination out of said subset;
  - using said selected combination for creating K printing masters by :
    - providing K printing master precursors,
    - selectively creating ink-carrying and non ink-carrying areas on said printing master precursors according to the selected combination by means of an inkjet printing system printing dots on the printing master precursors.
2. The method according to claim 1 wherein the printing masters are planographic printing plates and wherein the printed inkjet dots generate hydrophobic and hydrophilic areas.
3. The method according to claim 1 wherein said scalar value represents brightness or amount of ink allocation.
4. The method according to claim 1 wherein said scalar value is a linear combination of said input pixel values of at least two of said K colour components.
5. The method according to claim 1 wherein the selection of one combination out of said subset is done using a sub-dot phase modulation error diffusion algorithm causing the

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position of the inkjet dots to be controlled with an increment that is less than the size of the smallest inkjet dot.

6. The method according to claim 5 wherein the position of the inkjet dots can be controlled according to the pixel grid generated by the addressability of the inkjet printing system and the area of the smallest inkjet dot correspond to the area of 3x3 pixels of the pixel grid.
7. The method according to claim 5 wherein the error diffusion algorithm comprises a imprint function dynamically influencing the threshold values in the error diffusion algorithm.
8. The method according to claim 1 wherein the inkjet printing system is a multilevel inkjet printing system.
9. The method according to claim 1 wherein the inkjet printing system uses at least two different dot sizes.
10. An inkjet printing master made by the method according to claim 1.
11. An system for creating K printing masters for reproducing an electronic image having colour pixels, each colour pixel being represented by K spatially corresponding component pixels,  $K > 1$ , each component pixel having an input pixel value, the printing masters being capable of rendering  $N_j$  intensity levels for a component pixel,  $1 \leq j \leq K$ , thereby defining  $N_1 * N_2 * .. * N_K$  intensity level combinations, the system comprising :
  - means for computing for any colour pixel a scalar value which is a function of at least one of said input pixel values of said spatially corresponding component pixels;
  - means for quantizing said scalar value by a multilevel halftoning process to obtain for said colour pixel a quantized scalar value;
  - selections means for using said quantized scalar value to select, out of all said intensity level combinations, a subset of intensity level combinations;
  - means for selecting one combination out of said subset;
  - means for using said selected combination for creating K printing masters having :
    - means for providing K printing master precursors,
    - an inkjet printing system for selectively creating ink-carrying and non ink-carrying

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areas on said printing master precursors according to the selected combination by printing dots on the printing master precursors thereby obtaining said printing masters.